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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,122	08/23/2001	Gopal Laxman Tembe	029034/281611 (INPC-101)	1053

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EXAMINER
DANG, THUAN D

ART UNIT	PAPER NUMBER
1764	7

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-7

Office Action Summary	Application No.	Applicant(s)	
	09/938,122	TEMBE ET AL.	
	Examiner	Art Unit	
	Thuan D. Dang	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is not support from the specification for the limitation of claim 30. Note that a negative limitation must have positive support from the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, it is unclear if the claimed process requires using both Et_3Al and $Et_3Al_2Cl_3$.

Regarding claim 30, it is unclear if the zirconium tetrahalide is absence in the process or not. In other words, if zirconium halide is excluded from the process or not.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 13-17, 18, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langer, Jr. (4,409,414).

Langer discloses a batch/continuous process of making alpha-linear olefins having applicants' claimed range of number of carbons by oligomerizing ethylene in the presence of a

catalyst containing zirconium alkoxide such as $Zr(OBu)_4$ and alkyl aluminum halide, in the presence of a diluent such as toluene under the condition of a temperature ranging from below 125°C, a pressure ranging from above 50 psia such as 500 psia, during the applicants' claimed time and high-speed stirring (the abstract; col. 2, line 18 thru col. 6, line 34; col. 7, lines 12-29; examples, and the entire reference for details).

Langer discloses that the process is operated in the presence of alcohol to enhance the polymerization process (col. 5, lines 55-68).

On column 6, lines 1-4, Langer disclose ratio of the amount alcohol and the alkyl group of aluminum alkyl. Since the examiner cannot compare this ratio with the applicant's claimed ratio as called for in claim 1. The examiner **assumes** that the ratio used by applicants is different from the Langer's one. However, as disclosed by Langer, the amount of alcohol effect to the molecular weight of the product (col. 5, lines 55-57).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Langer process by selecting an appropriate amount of the added alcohol such as the applicants' claimed one according to the desired molecular weight of the product since it has been held by the patent law that the selection of reaction parameters such as temperature and concentration would have been obvious. More particularly, where the general conditions of the claimed are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller* 105 USPQ 233, 255 (CCPA 1955). *In re Waite* 77 USPQ 586 (CCPA 1948). *In re Scherl* 70 USPQ 204 (CCPA 1946). *In re Irmscher* 66 USPQ 314 (CCPA 1945). *In re Norman* 66 USPQ 308 (CCPA 1945). *In re Swenson*

56 USPQ 372 (CCPA 1942). *In re Sola* 25 USPQ 433 (CCPA 1935). *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Langer does not disclose the speed of agitator in the stirred tank. However, Langer discloses operating the reaction by a high-speed stirring (example 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select an appropriate stirring speed such as 300-1000 rpm to well-mix the reaction as taught by Langer to arrive at the applicants' claimed process.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Langer, Jr. (4,409,414) in view of Shiraki et al (5,260,500).

Langer discloses a process as discussed above.

Langer does not disclose adding thiophene into the catalyst (see the whole patent to Langer for details). However, Shiraki discloses that in a process for producing a linear alpha olefins, it is effective to add to the catalyst a sulfur compound such as thiophene to improve the purity of the linear alpha olefins (col. 1, lines 19-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Langer process by adding an amount of thiophene to increase the purity of the product.

Claims 4-12, 20-22, 24-27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langer, Jr. (4,409,414) in view of Young et al (4,855,525).

Langer discloses a process as discussed above.

Langer does not discloses using aluminum compounds as called for in claims 4-12, 20, 21, 25, and 26. However, Young et al discloses that aluminum compounds such as $R_3Al_2X_3$, AlR_2X, AlR_3, and $AlRX_2$ are equivalent components for oligomerization catalysts with X being Cl, R being ethyl (the abstract; col. 4, lines 46-51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Langer process by using $R_3Al_2X_3$ and AlR_3 as the aluminum component for the Langer catalyst since it is expected that using any equivalent aluminum compounds disclosed by Young would yield similar results.

Claims 23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langer, Jr. (4,409,414) in view of Young et al (4,855,525) further in view of Shiraki et al (5,260,500).

Langer and Young disclose a process as discussed above.

Neither Langer nor Young disclose adding thiophene into the catalyst (see the whole patent to Langer for details). However, Shiraki discloses that in a process for producing a linear alpha olefins, it is effective to add to the catalyst a sulfur compound such as thiophene to improve the purity of the linear alpha olefins (col. 1, lines 19-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Langer process having been modified by Young's aluminum compounds by adding an amount of thiophene to increase the purity of the product.

Response to Arguments

Applicant's arguments filed 11/25/2002 have been fully considered but they are not persuasive.

The argument that Langer does not teach without adequate free alcohol the zirconium component may undergo oligomerization to give an inorganic oligomer that has no activity as disclosed by applicants is not persuasive since Langer, as discussed in the above rejection, discloses that the alcohol effects to the molecular weight of the product. Therefore, the selection of the amount of alcohol for the Langer process according to the desired MW of the product is obvious as discussed above.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The argument that on column 3, lines 23-24, Langer teaches away a process as called for in claim 30 is incorrect (see column 3, lines 23-24; also review the 112, 1st and 2nd paragraph rejection).

The argument that Young discloses aluminum compounds being strictly used with respect to a catalyst having adduct of zirconium tetrahalide is not persuasive since these aluminum compounds are considered to be equivalent.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 703-305-2658. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Thuan D. Dang
Primary Examiner
Art Unit 1764

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February 10, 2003